EM 199907
EW 19990705

L10 ANSWER 18 OF 41 MEDLINE
AN 97146199 MEDLINE
DN 97146199
TI Treatment of hypercholesterolemia in patients undergoing multiple coronary angioplasties.
AU Marques V; Bowser S; Hendrickxs J; Ruffner R
CS Dept. of Medicine, Shadyside Hospital, Pittsburgh, Pennsylvania 15232, USA.
SO REVISTA PORTUGUESA DE CARDIOLOGIA, (1996 Nov) 15 (11) 787-91, 771-2.
Journal code: AOW. ISSN: 0304-4750.
CY Portugal
DT Journal; Article; (JOURNAL ARTICLE)
LA English
EM 199704
EW 19970403

L10 ANSWER 21 OF 41 MEDLINE
AN 96403003 MEDLINE
DN 96403003
TI Prevention of restenosis after coronary angioplasty with low-density lipoprotein apheresis.
AU Adachi H; Niwa A; Shinoda T
CS Department of Medicine, Musashino Red Cross Hospital, Tokyo, Japan.
SO ARTIFICIAL ORGANS, (1995 Dec) 19 (12) 1243-7.
Journal code: 8ZK. ISSN: 0160-564X.
CY United States
DT (CLINICAL TRIAL)
(CONTROLLED CLINICAL TRIAL)
Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199702
EW 19970204

L10 ANSWER 11 OF 41 MEDLINE
AN 1998076997 MEDLINE
DN 98076997
TI Adenovirus gene therapy for ***hypercholesterolemia*** , thrombosis and ***restenosis*** .
AU Gerard R D; Collen D
CS Center For Transgene Technology and Gene Therapy, Flanders Interuniversity Institute for Biotechnology, Katholieke Universiteit Leuven, Belgium.
SO CARDIOVASCULAR RESEARCH, (1997 Sep) 35 (3) 451-8. Ref: 69
Journal code: COR. ISSN: 0008-6363.
CY Netherlands
DT Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, TUTORIAL)
LA English
FS Priority Journals
EM 199803

L10 ANSWER 31 OF 41 MEDLINE
AN 95005582 MEDLINE
DN 95005582
TI Comparison of three porcine ***restenosis*** models: the relative importance of ***hypercholesterolemia*** , endothelial abrasion, and stenting.

Rev. Port. Cardiol. 15(11):787-791, 1996

Artigos Originais

Treatment of hypercholesterolemia in patients undergoing multiple coronary angioplasties [106]

Vasco Marques*, Steve Bowser, Jon Hendrickxs***, Robert Ruffner******

PALAVRAS-CHAVE: Hipercolesterolemia; Angioplastia; Prevenção secundária.
KEY-WORDS: Hypercholesterolemia; Angioplasty; Secondary prevention.

Introduction

Hypercholesterolemia is a known risk factor for CAD. Several studies have shown that by lowering cholesterol levels, specifically LDL levels, one will achieve reduction of the atherosclerotic process [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12]. There is now evidence that mortality can also be reduced by this intervention [7]. Angiographic trials have also shown that even when modest anatomic improvements have been achieved, coronary events (fatal and non fatal myocardial infarction as well as revascularization procedures) were substantially less [3, 5, 13].

Our study was designed to retrospectively analyze the adequacy of cholesterol control in our institution, a tertiary care center with a large volume of cardiovascular disease.

Hypercholesterolemia was defined as a total cholesterol level above 200 mg/dl. Patients in whom cholesterol levels fell below that level were considered to have been adequately treated.

Methods

Data collection: We reviewed charts from 129 pts who carried the diagnosis of hypercholesterolemia consecutively admitted for elective PTCA from October 1993 to August 1994. Each pt. had previously undergone at least one PTCA in the past. Pts without known history of hypercholesterolemia and pts undergoing emergent PTCA for acute ischemic events were excluded. In 13 of these pts it was not possible to find documentation of the cholesterol levels despite a reported history of hypercholesterolemia. The remaining 116 pts were the object of the study. They were divided into two groups: Group I (54 pts-46.5%) not being treated with any lipid lowering agent and group II (62 pts-53.5%) being treated with at least one lipid lowering agent. Both groups were further subdivided into «A» and «B», depending on whether or not the PTCA was being performed because of a «new» lesion or because of «restenosis», respectively. Group IA had a total of 31 pts, IB 23 pts, IIA 29 pts and IIB 33 pts. Pts age, sex, risk factors for CAD, presence or absence of previous myocardial infarction (MI) and left ventricular ejection fraction (LVEF) were also considered.

Statistical analysis:

The Mann-Whitney U test was used to compare non-treated and treated groups with regard to cholesterol levels, number of PTCA's, LVEF and age.

The Qui-square test was used to compare the groups in regard to the prevalence of risk factors for CAD and medications.

A p value less than 0.05 was considered to be statistically significant.

Population Characteristics:

In group I the average age was 63 years old (range 47 to 85 y.o.). Twenty four (44%) pts in this group were older than 65 y.o. Thirty two (59%) pts in this group were female. In group II the average age was 60 y.o. (range

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Recebido para publicação em Maio de 1996.
Aceite para publicaçao em Setembro de 1996

35-79 y.o.). Twenty three (37%) pts were older than 65 y.o. Forty two (68%) pts were female.

The prevalence of cigarette smoking, hypertension, diabetes mellitus and family history for CAD was found to be fairly uniform between the two groups (see table I). No appreciable difference in the medical regimen was documented between the two groups (see table II). The LVEF was similar in the two groups (mean 49.7% for group I and 48.6%) for group II). (see table III). The distribution of previous MI's between the group was also similar (see table IV).

Results

Group I pts had an average number of PTCA's of 3.4 and a mean cholesterol level of 227 mg/dl.

Only 14 pts (26%) from this group had total cholesterol levels below 200 mg/dl and only 8 pts (14%) had a total lipid profile charted. From these only one pt. had LDL cholesterol level below 100 mg/dl and only 3 pts had LDL cholesterol levels below 130 mg/dl. The average HDL cholesterol level was 34 mg/dl. In this group 48 pts had available triglyceride levels (the mean value was 224 mg/dl).

Group II pts had an average number of procedures of 3.34 and a mean cholesterol level of 228 mg/dl. Only 16 pts (26%) had a total cholesterol level below 200 mg/dl. Only 15 pts (24%) had a total lipid profile documented. Among these pts, none had a LDL cholesterol level below 100 mg/dl and only four had LDL levels below 130 mg/dl. The average HDL level was 39 mg/dl. In this group 49 pts had available triglyceride levels (the mean value was 232 mg/dl). None of the small differences between the two groups was statistically significant.

Subgroup analysis revealed no statistically significant differences between the number of procedures and the lipid levels among the 4 subgroups. (see table IV).

TABLE I

PREVALENCE OF RISK FACTORS FOR CAD IN GROUPS I AND II

	cig. smoking	HTN	DM	FHx
GROUP I (n=54)	16	36	14	19
GROUP II (n=62)	10	42	17	24

TABLE II

MEDICAL THERAPY IN GROUPS I AND II

	B-blockers	Calcium channel blockers	Nitrates	Aspirin	Anti-oxidants	Coumadin
GROUP I (n=54)	30	42	41	52	7	3
GROUP II (n=62)	28	43	38	53	9	6

The 13 pts who were excluded from the study due to lack of documentation of lipid levels included 4 pts who were taking lowering agents and 9 pts who were being treated with diet control.

Discussion

In a recent editorial (14), W. Roberts commented upon the fact that CAD pts with hypercholesterolemia were not getting lipid lowering medications because of cost but were commonly being offered revascularization, a much more costly therapy. Silver et al. (15), documented that of pts undergoing PTCA, only 25% had determination of their serum lipids during a 2 year follow up and an even a smaller percentage were receiving adequate treatment (drugs and/or diet). Studies [16, 17] performed in different areas of the USA and in different teaching settings indicate that only about 33% of pts with established indications for cholesterol lowering agents receive such therapy. Our study substantiates these tendencies.

Fuster [18], Steinberg [19] and others have described the pathogenesis of the acute coronary syndromes and the factors predisposing to plaque rupture. The understanding of the central role that lipids (LDL in particular) play in the atherosclerotic lesion proved early epidemiologic studies right. Subsequent studies documented that lowering cholesterol, parti-

TABLE III

DISTRIBUTION OF PTS. ACCORDING TO THE LEFT VENTRICULAR EJECTION FRACTION (LVEF)

	Non of pts. with LVEF<35	No of pts. with LVEF>35%<50%	No of pts. with LVEF>50%	Not available
GROUP I (n=54) Mean LVEF=49.7%	5	30	19	
GROUP II (n=62) Mean LVEF=48.6%	9	28	25	

TABLE IV

DISTRIBUTION OF PREVIOUS MYOCARDIAL INFARCTION IN GROUPS I AND II

	Transmural myocardial infarction			N-Q wave Myocardial Infarction
	Anterior	Inferior	Other	
GROUP I (n=54)	6	18	1	10
GROUP II (n=62)	9	15	-	6

cularly LDL-C, gave rise to less progression and even regression of the atherosclerotic process. Recently, the importance of lipid lowering agents on endothelial dysfunction was stressed [20, 21] as well as the effects that at least some of the lipid lowering agents, have on the inhibition of platelet induced thrombosis both «in vitro» and «in vivo» [12, 20, 22]. Beneficial effects on endothelial dysfunction and on thrombosis may account for the fact that treatment with some HMG-CoA reductase inhibitors have shown a decreased in the number of coronary events (fatal and non fatal MI's as well as the number of revascularization procedures) in some trials even when the absolute reduction in cholesterol levels was not very dramatic.

The impact that lipid lowering agents have on restenosis has not been very significant [23]. There is, however, some data supporting that more aggressive lipid management with LDL apheresis [24] may have a role in the management of this process. This may be due to the fact that LDL apheresis lowers Lp(a), which cannot be achieved with most lipid lowering agents (in fact, among all lipid lowering agents, only nicotinic acid has been shown to affect Lp(a) levels).

Women were highly represented in our series. Initial sudies in hypercholesterolemic subjects failed to include women. However data from the 4S trial [7] showed that simvastatin decreased major coronary events in women. Nevertheless, due to the small number of women included in the trial impact on mortality could not be assessed. ACAPS [25] and PLAC II [22] trials, which primarily studied progression of atherosclerosis in carotid arteries, but in which coronary events were also monitored, seem to support the 4S trial results [7].

Individuals 65 and older were also very prevalent in our series. Initially this segment of the total population with CAD and hypercholesterolemia was not adressed in the prospective trials. However, the 4S trial [7] documented reduction in major coronary events and a significant impact on mortality in this age group. Data from the ACAPS trial [25] seems to support this result. Pooled data from the PLAC I and PLAC II trials [26] showed that pravastatin was associated with a 79% reduction in coronary event incidence and with a 86% reduction in non fatal MI's in the elderly population. Mortality could not be assessed due to the small number of pts enrolled.

Data from trials that included pts with slightly abnormal cholesterol levels (total cholesterol >160 mg/dl < 240 mg/dl and/or LDL levels > 100 mg/dl < 160 mg/dl) is lacking. Two trials - FATS [3] and HARP [27] - reported on these pts with contradictory results. The FATS trial suggested that this group of pts benefited from therapy. The HARP trial was essentially a neutral trial in terms of coronary events, however, there was a slightly lower (thought statistically insignificant) incidence of atherosclerotic progression in the treated group. Two ongoing trials (CARE and LIPID) will address this issue.

Few studies indicate that triglycerides may play a role in the development of atherosclerosis. A 1987 observational study [28] concluded however that the best predictor of progression of atherosclerosis was not the levels of total cholesterol or LDL cholesterol but rather the levels of VLDL cholesterol (lipoproteins very rich in triglycerides). The Stockholm study [29] concluded that the best correlation with coronary mortality was the triglyceride level rather than the cholesterol levels. However, LDL or HDL levels were not reported in this study. In addition, data from the 4S trial indicates that the pts who did better (less events) were the ones who had initially elevated triglyceride levels and low HDL levels. The significance of these results remains unclear. Two ongoing secondary prevention trials (BIP study and HIT study) are addressing this problem.

Interestingly, in our study, the average cholesterol levels in both group I and II is very similar. Our interpretation of the data is that patients in group II (the treated group) started off with a higher cholesterol level. Because these patients were on lipid lowering agents, cholesterol levels were somewhat reduced; however adequate levels were not reached.

Conclusions

A significant percentage of pts undergoing multiple PTCA's are not being treated or monitored adequately for hypercholesterolemia despite aggressive invasive management. It is important to stress that the majority of pts in this series were from a referred population. This may mean that a formidable effort in educating primary care physicians in the therapy of hypercholesterolemia is still needed.

Resumo

Este é um estudo retrospectivo de 129 doentes com hipercolesterolemia e múltiplas angioplastias coronárias. O objectivo da investigação foi o de determinar se tais doentes estavam a ser adequadamente tratados e seguidos no que se refere ao controlo da hipercolesterolemia. Todos os doentes foram electivamente admitidos para a angioplastia coronária (angioplastias realizadas em doentes com síndromas coronários instáveis foram excluídos assim como doentes sem prévio diagnóstico de hipercolesterolemia).

Treze dos doentes não tinham níveis de colesterol documentados apesar do diagnóstico de hipercolesterolemia. Os 116 doentes foram então divididos em dois grupos: grupo I (54 doentes-46,5%) incluia doentes que não estavam a ser tratados com qualquer agente hipolipidémico; grupo II (62 doentes-53.5%) incluia doentes tratados com, pelo menos, um destes agentes.

Ambos os grupos foram ainda subdivididos em «A» e «B», dependendo se a angioplastia estava a ser realizada devido a «re-estenose» ou devido a uma lesão «nova», respectivamente. O grupo IA tinha um total de 31 doentes, IB 23 doentes, IIA 29 doentes e IIB 33 doentes. Doentes do grupo I tinham uma media de 3,40 angioplastias e um valor médio para o colesterol de 227 mg/dl. Doentes do grupo II tinham um número médio de angioplastias de 3,34 e um valor médio de colesterol de 228 mg/dl. O grupo IA teve um número médio de angioplastias de 3,65 e um colesterol médio de 221 mg/dl; para o grupo IIA estes valores eram, respectivamente, 3,17 e 221 mg/dl. O grupo IB teve um número médio de angioplastias de 3,09 enquanto que para o grupo IIB este número foi de 3,49; o valor médio de colesterol foi, respectivamente, de 235 mg/dl e 234 mg/dl. A diferença entre os grupos, quer pelo número de angioplastias, quer pela colesterolemia, não é estatisticamente significativa.

O grupo I tinha 14 doentes (26%) com níveis de colesterol abaixo de 200 mg/dl enquanto que no grupo II havia 16 doentes (26%) com essas características. No grupo I havia apenas 8 doentes (14%) com perfis lipídicos (colesterol total, triglicéridos, colesterol HDL e colesterol LDL) documentados. Neste grupo apenas 1 doente tinha níveis de colesterol LDL abaixo de 100 mg/dl e só 3 doentes abaixo de 130 mg/dl. No grupo II apenas 15 doentes (24%) tinham perfis lipídicos documentados. Destes, nenhum doente tinha colesterol LDL abaixo de 100 mg/dl e, apenas 4 doentes tinham colesterol LDL abaixo de 130 mg/dl.

Concluímos que uma percentagem significativa de doentes submetidos a múltiplas angioplastias coronárias não estão a ser adequadamente tratados e seguidos no que se refere a controlo da hipercolesterolemia.

Summary in English: see page 779.

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Summary of this issue

[105] Transesophageal echocardiography. Critical appraisal. How to avoid pitfalls

Jorge Almeida, Francisco Sepúlveda, Pedro T. Bastos, M. Rodrigues Gomes

Summary

In this study the authors make a critical appraisal of transesophageal echocardiograhy. A retrospective analysis was made of the transesophageal echocardiographic performed in the Thoracic Surgery Center of S. João Hospital, Oporto, over a period of approximately five years. The authors report the limitations and complications of this diagnostic tool with particular emphasis on the leading causes of pitfalls.

Between October 1990 and December 1995, 1282 examinations were performed in our echocardiographic laboratory, mean age 49.6±14 years (5-86), 57% of the patients were female and 43% male. A biplane transducer was used in these examinations. Patient absenteeism was 2% and only one major complication occurred in a patient with an aortic dissection.

Pitfalls are of special concern with this technology. The new esophagic window over the heart and the high quality of the cardiac images, depicting structures and anatomic details inacessible, or difficult to be observed by transthoracic echocardiographic, led to the major causes of transesophageal echocardiographic pitfalls. Once recognized, most of the pitfalls can be avoided.

In what concerns our experience, examples of the most common pitfalls are illustrated.,

[106] Treatment of hypercholesterolemia in patients undergoing multiple coronary angioplasties

Vasco Marques, Steve Bowser, Jon Hendricks, Robert Ruffner

Summary

Background: Hypercholesterolemia is a known risk factor for coronary artery disease (CAD). Multiple studies have shown that its treatment will reduce the rate of progression of coronary atherosclerosis and lead to regression of the atherosclerotic process.

Recent studies have also shown impact on mortality. Angioplasty (PTCA) is a well established revascularization procedure for many of these patients. In this study we investigated whether or not therapy for hypercholesterolemia in patients undergoing elective PTCA had been instituted and, if so, whether desirable cholesterol levels had been achieved.

Methods: We reviewed the charts of 129 patients (pts) who were consecutively admitted for elective PTCA between September 1993 and August 1994. All pts. had at least one PTCA in the past and all of them had the diagnosis of hypercholesterolemia. The list was made using a computer search of all pts. meeting the previous two diagnoses. Pts on whom PTCA was performed in the setting of acute ischemic events were excluded as well as pts with no known history of hypercholesterolemia.

Results: In 13 out of 129 pts.,it was not possible to find cholesterol levels. The 116 pts in whom cholesterol levels were available were divided in two groups. Group I (54 pts.- 46.5%) included pts. not being trated with any lipid lowering agent and group II (62 pts.-53.5%) included pts being treated with at least one of those drugs.

Both groups were further subdivided into «A» and «B», depending on whether the PTCA was being performed because of a «new» lesion or because of «restenosis», respectively. Group IA had a total of 31 pts, IB 23 pts, IIA 29 pts and IIB, 33 pts. Group I pts had an average of 3.40 PTCA's and a mean cholesterol level of 227 mg/dl. Group II pts had an average numer of PTCA's of 3.34 and

a mean cholesterol level of 228 mg/dl. Group IA had an average number of PTCA's of 3.65 and a mean cholesterol level of 221 mg/dl; for group IIA these values were, respectively, 3.17 and 221 mg/dl. Group IB had an average number of procedures of 3.09 while for group IIB this number was 3.49; the mean cholesterol levels were, respectively, 235 mg/dl and 234 mg/dl. None of these differences is statistically significant.
Group I had 14 pts (26%) with cholesterol levels below 200 mg/dl while group II had 16 pts. with cholesterol levels below 200 mg/dl (26%). In group I, 8 pts (14%) had lipid profiles documented. Only 1 pt. had an LDL level below 100 mg/dl and only 3 pts had an LDL level below 130 mg mg/dl. In group II, 15 pts (24%) had a lipid profile documented.
Of these, no pt. had an LDL level below 100 mg/dl and only 4 pts had an LDL level below 130 mg/dl.
Conclusions: A significant percentage of pts. undergoing multiple PTCA's are not being treated or monitored adequately for hypercholesterolemia despite aggressive invasive management.

[107] A new classification of inferior myocardial infarctions with a relevant prognostic significance

Juan C. García Rubira, Francisco Molano, Francisco Trujillo, Manuel Rodríguez-Revuelta, Dolores Romero, Victor López, José Rojas

Summary

Background: The initial therapy of acute myocardial infarction is often determined by the electrocardiogram.

Objective: To evaluate a clasification of inferior myocardial infarctions according to the first electrocardiogram.

Design and setting: Prospective study in a coronary care unit.

Patients: 116 patients admitted due to a first acute myocardial infarction of the inferior wall.

Methods: «Type 1» electrocardiogram was defined as ST segment elevation without distortion of the QRS. Patients were considered «type 2» when, besides ST segment elevation, they presented a distortion of the terminal portion of the QRS complex in two inferior leads.

Main results: Twenty-nine patients (25%) were considered «type 2». These patients were older and had worse Killip class than «type 1». The mortality rate was 1.2% in «type 1», and 24.1% in «type 2» (p=0.0002). After multivariate analysis, which included Killip class, age, smoking, type of electrocardiogram and fibrinolysis, the type of electrocardiogram remained significantly predictive of death (p=0.014).

Conclusions: We conclude that «type 2» electrocardiogram is an independent predictor of adverse outcome in inferior infarctions. Further investigation is needed concerning its implications in the clinical management of these patients, although reperfusion therapy is warranted.

[108] Q fever endocarditis. A case report

Manuel Almeida, Paulo Paixão, Jorge Ferreira, Marisa Trabulo, Vítor Gil, Teresa Marques, Aniceto Silva, Ricardo Seabra-Gomes

Summary

Endocarditis is a rare, but some times fatal, complication of Q fever. Its diagnosis is difficult and it is based on non-specific cardiac findings and a high title of phase I antibodies.
The treatment is based on tetraciclines alone or in combination with cotrimoxazole, for long periods of time. The therapeutic efficacy is evaluated by the measurement of phase I antibodies, every three months. The relapses are frequent despite the long period of antibiotic therapy.
We report what is probably the first case of Q fever prosthesis endocarditis in Portugal as a complication following an acute episode of Q fever.

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